



---

Animal Specialty Hospital of Florida

---

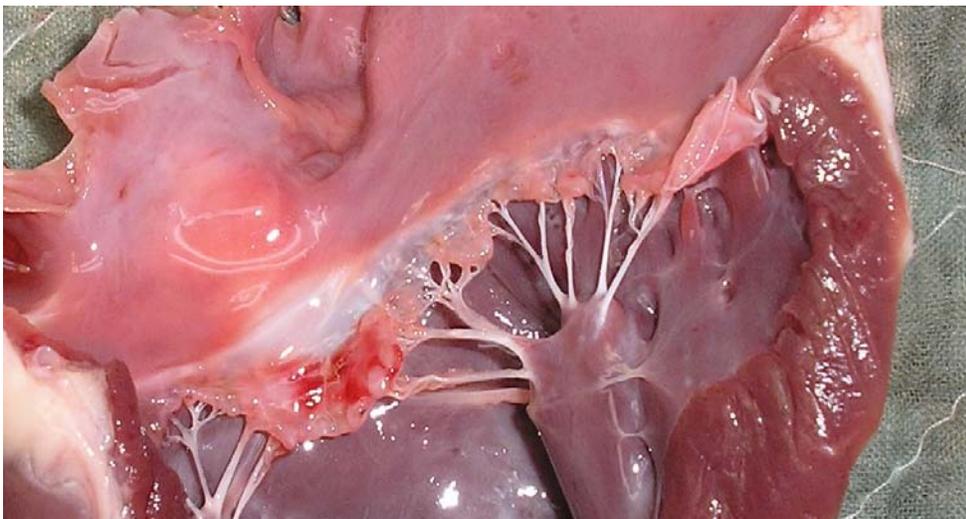
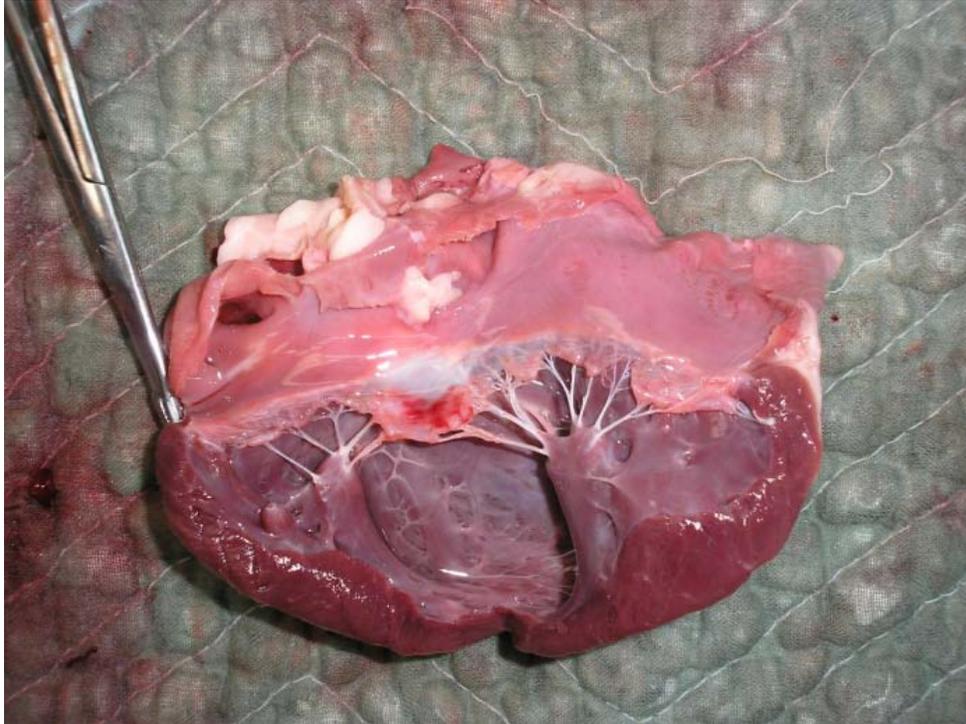
*Exceptionally skilled. Uniquely compassionate.*

**Canine Chronic Mitral Valvular Disease**

Nick Schroeder DVM DACVIM (cardiology)

Chronic mitral valvular disease (CMVDz) is by far the most common acquired heart disease seen in dogs. This condition is also known by a number of different names, which occasionally leads to confusion for the average pet owner. Chronic valvular disease may also be known as myxomatous valvular degeneration (MVD or MMVD for myxomatous *mitral* valvular degeneration), degenerative mitral valvular disease (DMVD) or mitral “*endocardiosis*.”

Basically, age-related degeneration develops on one of the valves on the left side of the heart, which is known as the mitral valve. This disease may also affect other valves within the heart, and the tricuspid valve (on the right side of the heart) is the next most commonly affected. Normal valve tissue is relatively thin and flat, and as long as the ring of tissue around the valve (known as the annulus) is not dilated, the valve forms a tight seal during each heart beat, keeping the blood coming into the heart from the lungs going out the left side of the heart to the rest of the body. Myxomatous changes may occur in the valve tissue as dogs age. These changes are non-inflammatory, non-infectious and resemble cartilage tissue when evaluated under the microscope. This results in thickening of the valve leaflets. Additionally, the annulus may become dilated, stretching the valve leaflets apart. Furthermore, the same process affects the supporting structures of the valve, known as chordae tendinae. These are similar to the lines of a parachute, and anchor the edges of the valves to the inside of the heart. The chordae tendinae may become redundant and even rupture in some cases. These changes cause the valve to leak blood backwards with every heart beat. This is termed mitral insufficiency (MI) or mitral regurgitation (MR).



Photographs of a dog's heart. The left heart chambers have been opened up, showing the valve tissue. The chordae tendinae are the string-like structures that serve to anchor the tips of the valves. Nodular thickening of the edges of the valves are consistent with chronic mitral valve disease, and the heart is enlarged.

Nearly every dog over the age of 8-10 years will have some evidence of this disease on necropsy (animal autopsy). Small breed dogs are particularly predisposed to this disease, which in some cases may become quite serious. Cavalier King Charles Spaniels, miniature Poodles, Yorkshire Terriers, Shih Tzus, Pomeranians and Chihuahuas are commonly afflicted, but any dog may develop this disease as they get older. This disease tends to be slowly progressive, and most dogs enjoy months to years of preclinical disease. If a severe enough leak develops, the left side of the heart enlarges, and congestive heart failure may ensue.

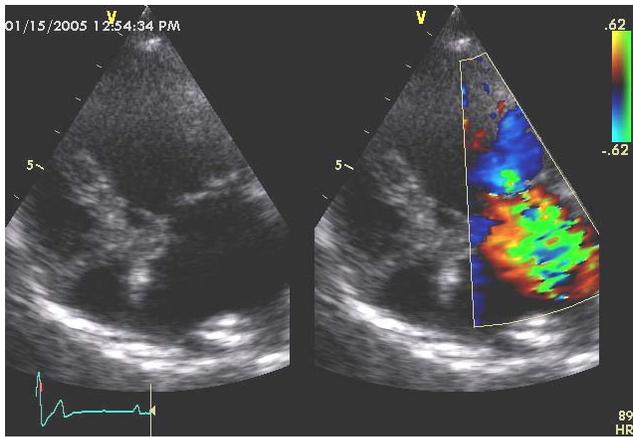
Dogs with preclinical disease typically have no symptoms at all. Most commonly, our only clue that a patient has this disease is the presence of a heart murmur on physical examination. A heart murmur is an abnormal

*wooshing* noise made by vibrations caused by the jet of blood coming from the leaky valve. This can be heard with the aid of a stethoscope. Murmurs are typically graded on a scale of 1 to 6. A grade 1 murmur is very, very quiet and difficult to appreciate. Grade 6 murmurs not only are accompanied by a palpable thrill (a vibration felt on the chest wall), but also are heard without the aid of the stethoscope. Generally, the degree of valve leakage corresponds to how loud the murmur is, and dogs with a higher grade of murmur tend to have a larger amount of mitral insufficiency. No veterinary studies have conclusively demonstrated the benefit of medication in patients without symptoms of cardiac disease.

Patients with a loud murmur and a history of symptoms such as exercise intolerance, coughing, difficult or labored breathing or fainting (syncope) should be evaluated for the presence of chronic mitral valvular disease. The first step is a visit to your veterinarian for a complete physical examination. Chest x-rays are used to document heart enlargement, and can help diagnose congestion and even fluid in the lungs (pulmonary edema) from congestive heart failure. Echocardiography (ultrasound of the heart) is used to verify the cause of the heart murmur, assess for muscle pump function, as well as evaluate for the presence of pulmonary arterial hypertension (high blood pressure in the lungs). Bloodwork may be used to monitor kidney function, which is important in patients taking medications for heart disease.



Chest x-rays of a Cavalier King Charles Spaniel with severe mitral valvular disease. The shadow of the heart, termed the *cardiac silhouette*, is severely enlarged.



**Echocardiograph of a dog with severe mitral insufficiency secondary to chronic mitral valvular disease. The bright green color on Doppler to the right represents the high-velocity jet of blood leaking backwards across the valve.**

**Some dogs may have heart enlargement, and be at a relatively high risk for congestive heart failure. The veterinarian may elect to try some medication at that point. Generally, medication for blood pressure control is considered. Owners of such dogs should be vigilant in monitoring for any coughing, difficult or labored breathing or exercise intolerance, as these signs may be associated with heart failure.**

**Dogs that have clinical disease need medical management for congestive heart failure. Heart failure in dogs is generally managed with diuretics, blood pressure medication and medication to improve heart muscle pump function. It is important to note that the medications help relieve the symptoms of heart failure, but do not affect the progression of heart disease or reverse it in any way. It is not advisable to discontinue medications used to treat congestive heart failure except at the direction of the veterinarian.**

**Dogs with congestive heart failure secondary to chronic mitral valvular disease can generally be medically managed for anywhere between 9 months-2 years. Patients that have life-limiting concurrent problems such as kidney disease or cancer may not do as well. Some patients can live for years following their first episode of heart failure if properly managed. Consultation with a veterinary cardiologist is generally recommended for patients with congestive heart failure.**